

Remarks

Claims 22 to 36 are pending. No claims have been canceled, withdrawn from consideration, amended, or added.

§ 103 Rejections

Claims 22-30 and 35 stand rejected under 35 USC § 103(a) as being unpatentable over Chau et al. (US Patent 5,735,988) in view of Stamm (US Patent 3,712,706) and Rowland (US Patent 3,810,804).

Claims 31, 33, 34, and 36 stand rejected under 35 USC § 103(a) as being unpatentable over Chau et al. (US Patent 5,735,988) in view of Stamm (US Patent 3,712,706).

Claim 32 stands rejected under 35 USC § 103(a) as being unpatentable over Chau et al. (US Patent 5,735,988) and Stamm (US Patent 3,712,706) in view of Rowland (US Patent 3,810,804).

Applicants submit that the following discussion demonstrates that all of the claims are patentable.

The References

Chau discloses a method for making an optical element intended to be used to provide collimated back lighting to a liquid crystal display. The optical element employs a series of linear peaks that are coated with a material that may be reflective or merely refractive. An index matching material is present on top of the reflective or refractive coating, and a substrate is present over the index matching fluid.

Stamm discloses an optical reflector that utilizes cube corner cavities. The cavities are coated with a reflective material and then filled with an optically transparent material.

Rowland discloses a retroreflective material that comprises a surface having cube corner recesses, i.e., cavities, that are filled with a molding material. A body member is applied to the filled recesses to provide a smooth surface. The other surface comprises a series of cube corner projections or peaks. A reflective coating is applied to the projections and an adhesive is applied over the reflective coating.

Argument

The Rejection of Claims 22-30 and 35

The Examiner has stated that it would be obvious to replace the linear grooves of Chau with the cavities of Stamm and to replace the “adhesive” of Chau with the pressure sensitive adhesive of Rowland. Applicants traverse this rejection.

The combination of Stamm with Chau is not appropriate. Chau relies on a surface having continuous linear peaks to provide the underlying topography required to achieve his desired result, i.e. total reflectance of light. These peaks represent upward projections from the surface.

The substitution suggested by the Examiner would replace the continuous linear peaks, that is the continuous upward projections with a discontinuous feature, in this case cavities. Such a substitution requires a multi-step process as is explained below.

As noted above, Chau is directed to an optical element used to provide collimated back lighting to a liquid crystal display. The continuous linear peaks of Chau provide the maximum that is essentially total reflectance of incident light to a backlit display. If cube corner elements were used in place of the continuous peaks there would be a significant reduction in the amount of incident light reflected. This is because a cube corner structure whether a peak or a cavity is discontinuous. The discontinuities introduce interference patterns in the reflected light that in turn reduces the amount of light incident reflected from the display. A reduction in the level of reflected light is contrary to the goal of Chau and would, therefore, not be viewed by one of skill in the art as appropriate.

The substitution of the cube corner cavities of Stamm for the linear grooves of Chau is improper for another reason. First, one would have to replace the continuous peaks of Chau with a discontinuous feature. Then one would have to determine that the discontinuous peaks should be replaced with cavities. Nothing in either Chau suggests such a two-step substitution.

The addition of Rowland to Chau does not overcome the underlying problems of Chau. There is nothing in Rowland that would suggest that making the substitution proposed by the Examiner would provide equivalent or improved reflectance in the resulting article. As a result, there is no motivation to make the substitution and the combination is not appropriate.

It is submitted that the rejection of claims 22-30 and 35 under 35 USC § 103(a) as being unpatentable over Chau in view of Stamm and Rowland has been shown to be improper and should be withdrawn.

Finally, the Examiner has stated that Chau teaches a method in which a radiation curable adhesive is applied to the structured surface. He never uses the word "adhesive" and he never describes the fluid as an adhesive. Chau only teaches the use of an "index matching fluid". The only material that Chau specifically teaches as being useful as the "index matching fluid" is an acrylic based epoxy. This is nothing more than a general description of a chemical and cannot be said to teach an adhesive. To say otherwise would be like saying that the combination of a lock was known simply because the integers used in the combination were known.

The Rejection of Claims 31, 33, 34 and 35

The Examiner has applied the same reasoning in this rejection as he has applied in the rejection of claims 22-30 and 35. The sole difference appears to be that he has applied only the Chau and Stamm references.

Applicants submit that the rejection of claims 31, 33, 34 and 35 fails for the same reasons as apply to the rejection of article claims 22-30 and 35. Since the article of claims 22-30 and 35 is not obvious, the method of making the article is not obvious. Accordingly, the rejection of claims 31, 33, 35 and 35 under 35 USC § 103(a) as being unpatentable over Chau in view of Stamm has been overcome and should be withdrawn.

The Rejection of Claim 32

The Examiner argues that claim 32 is obvious over the combination of Chau and Stamm, as applied to claims 31, 33, 34 and 35, further in view of Rowland. Applicants submit that the addition of Rowland to the combination of Chau and Stamm does not overcome the shortcomings of that combination.

As noted previously, there is nothing in Rowland to suggest that the substitution proposed by the Examiner will provide equivalent or improved reflectance of the resulting article in a backlit liquid crystal display. As a result, there is no motivation to make the substitution and the combination is inappropriate. Accordingly, it is submitted that the rejection of claim 32 under 35

USC § 103(a) as being unpatentable over Chau in view of Stamm and Rowland should be withdrawn.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application and allowance of all pending claims at an early date is solicited.

Respectfully submitted,

October 3, 2003
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